

this is r0ket science

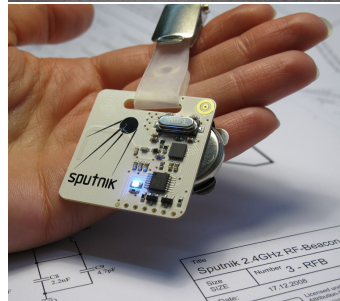
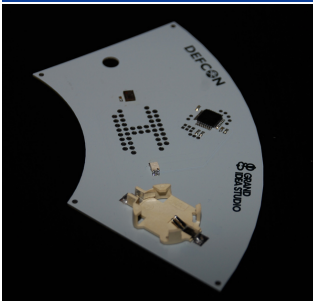
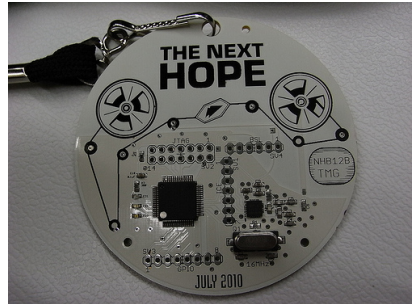
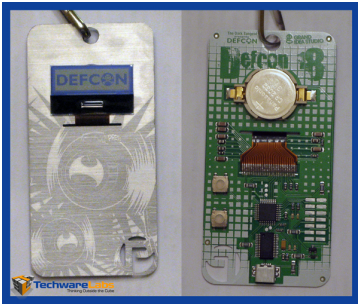
team r0ket <team@badge.events.ccc.de>

2010-08-10 - Day 1 @ CCCamp11

# Fahrplan

- 1 Motivation
- 2 Hardware
- 3 Production and Fuckups

# Other Badges



Title	Sputnik 2.4GHz RF-Beacon
Size	3 - RFB
DATE	17.12.2009
Model	17.12.2009
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# Our first badge

- For the easter hegg 2010 in Munich.
- AVR with 8kB program memory.
- 100 kits soldered by participants.
- Sold out in minutes.





# What happens after the event?

- After the event most badges end up in the drawer.
- Coin cells are expensive, never at hand and always empty.
- Bigger batteries needed for a backlight.

# Let's do it "right"

- No more disposable batteries.
- Populated headers for extensions.
- Only controllers which are supported by gcc.

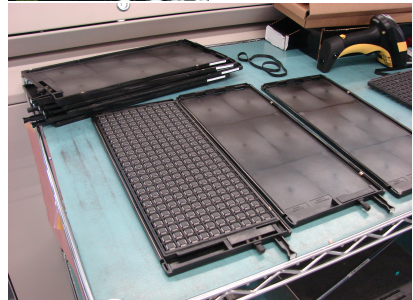
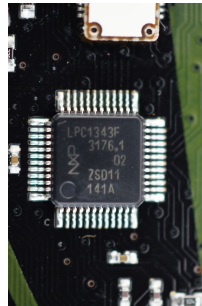
# Battery

- The evil daystar has regular downtimes.
- Backlights need lots of power.
- Lithium is the only real option.
- A 600mAh battery powers a backlight for at least one day.
- Integrated charge controller is independent from the firmware.



# CPU

- Today everyone does arduino.
- We wanted a more powerfull CPU
- NXP donated one of their ARM Cortex-M3 controllers to us.
- But: only 32kb flash...



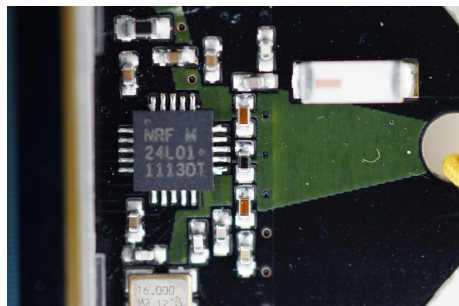
# LCD

- Displays are more expensive than one might think
- But: Nokia made lots of them :)
- Found cheap and nice looking LCDs for old Nokia phones.



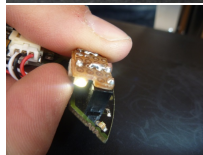
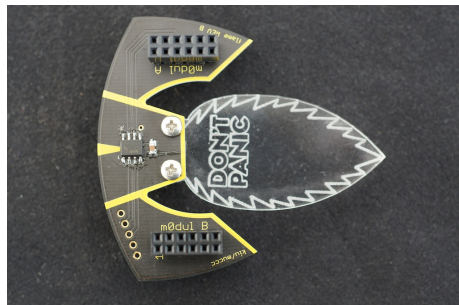
# Radio interface

- At first a radio interface seemed to expensive.
- Milosch told us a good dealer for the chips OpenBeacon uses.
- The last prototype got a radio interface. It worked.



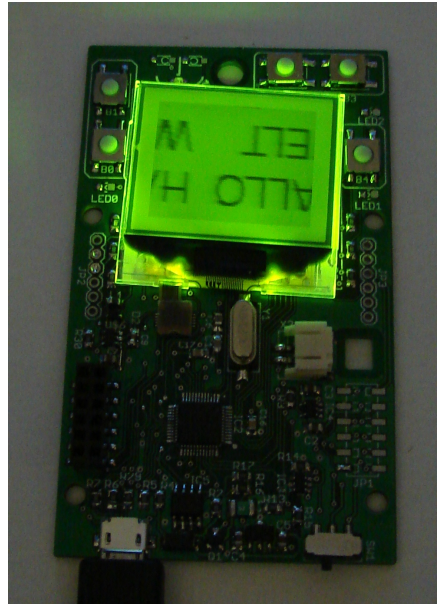
# Modules

- Modules extend the r0ket
- They can be combined with stackable headers
- Already there: Flame, Magnetometer, Flashlights



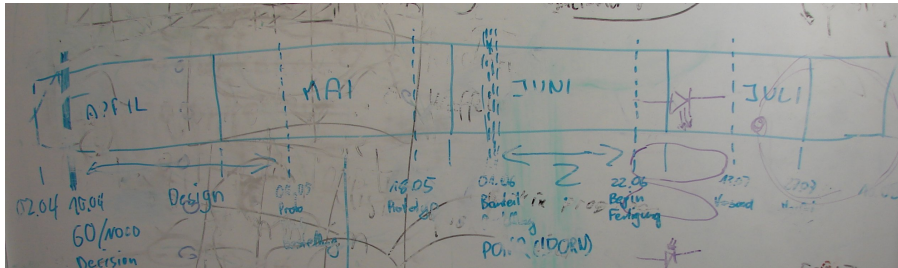
# Design

- First prototype was lame.
- Someone said: I'd like a rocket.
- We did r0ket :)



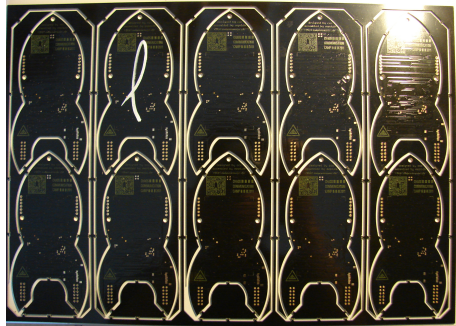
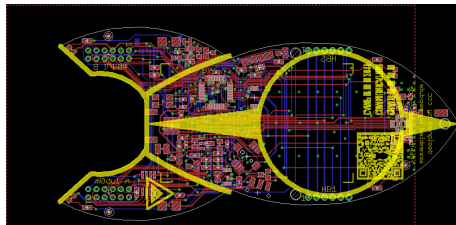


# Timeline



# PCBs

- Ordered PCBs at a german company.
- Realized too late that they sub-contract to china.
- Colors are wrong, PCBs arrived late, panel was instable.



# Production

- Got a very good price at [eepd.de](http://eepd.de)
- Unbeatable: We got to test the first devices
- Only a 1h drive away from our Hackerspace

